REMARKS / ARGUMENTS

The present claim amendments are submitted pursuant to the examiner's comments in a final office action letter dated January 2, 2008, and as related in a telephone interview on March 7, 2008, and are entered in order to place the claims into condition for allowance in view of said comments.

The specification has also been amended to more fully define formula terms supported by incorporated references pursuant to a request of the examiner during the telephone interview on March 7, 2008. These amendments are believed fully supported by the references incorporated into the specification as originally filed, and thus they are not believed to introduce new matter into the application.

Claim Rejections - 35 USC § 112

Claims 19-33 stand rejected under 35 USC § 112, second paragraph, as being indefinite. Independent claims 19, 24 and 29 are amended herein to claim determining, or a data flow manager is configured to determine, "a low level threshold for a queue as a fraction of a maximum capacity of the queue wherein the transmit probability is one." This amendment is supported by the specification as originally filed by element 16 of Figure 1, and by the specification materials referencing said element and said figure, and as discussed in the telephone interview on March 7, 2008, the examiner is in agreement that said amendment renders claims 19, 24 and 29 definite under 35 USC § 112, second paragraph. This amendment is further believed to render definite the remaining dependent claims 20-23, 25-28 and 30-33 under 35 USC § 112, second paragraph.

Additionally, the present amendments to the specification are also believed to address concerns of the examiner with respect to definitions of the terms "fi,min" and "fi,max" appearing in claims 22, 27 and 32, and the present specification amendments are believed to address the examiner's concerns. Thus, claims 19-33 are all now each believed allowable under 35 USC § 112, second paragraph.

Claim Rejections - 35 USC § 103

Claims 19-33 stand rejected under 35 USC § 103(a) as being unpatentable over Aydemir et al (Int. Pub. No. WO 01/39467) in view of Bowen et al. (Ed Bowen, Clark Jeffries, "Bandwidth Allocation for Non-Responsive Flows with Active Queue Management," IEEE, 2002) and VanZante et al (U.S. Pat. No. 6079034). In rejecting claims under 35 U.S.C. §103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1986). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir.1984).

Claims 19-33 are not obvious under 35 USC § 103(a) over Aydemir in view of Bowen and VanZante. More particularly, as previously submitted on October 9, 2007 and as presently amended, independent method claim 19 claims a method for managing and transmitting a plurality of data packets through a queue in a computer network system, wherein queue transmit probabilities, and low hysteresis level thresholds are determined and used for data packet flow management in response to a novel and specifically-claimed algorithm or function dependent upon a determination and observation of *one of two hysteresis states*. More particularly, the methods claimed *depend* on observing a current *hysteresis flag* setting and then *choosing* between and applying *divergent* management functions, each of which may also *reset* the flag for *subsequent* data packet management through divergent steps.

Thus, as claimed in new claim 19:

(i)   a hysteresis flag is <u>initialized to ON</u>;

(ii)   with the flag set <u>ON</u>, first packet transmission through the queue is managed, the transmit probability revised and/or a decision whether or not to reset the flag to <u>OFF</u> is made as a function of a <u>hysteresis level queue threshold</u> comparison;

(iii)   and for subsequent packet bursts, the state of the hysteresis flag is determined, and two divergent paths and processes are responsively selected, wherein if the flag is ON, then the path of (ii) is applied but if instead the flag is <u>OFF</u> (for example through application of path (ii)), then the queue is managed, a transmit probability is revised and/or a decision whether or not to reset the flag to <u>ON</u> is made as a function of <u>divergent</u> comparisons, a <u>low level</u> queue threshold comparison <u>and</u> an aggregate link traffic <u>bandwidth</u>-to-maximum link bandwidth <u>capacity</u> comparison.

Therefore, subsequent data packets are managed divergently in direct response to ON-OFF hysteresis flag settings provided as a function of previous packet management pursuant to (ii) or (iii) above. A combination of elements that work together "in an unexpected and fruitful manner" would not have been obvious. <u>KSR Int'l Co. v. Teleflex Inc.</u>, 127 S. Ct. 1727, 1740 (2007). New claim 19 defines a novel relationship of <u>four</u> parameters or elements (low queue threshold, hysteresis queue threshold, bandwidth-capacity comparison and hysteresis flag state parameters/elements) in a novel and clearly-defined and <u>complex</u> <u>multi-step</u> process. And the specification provides numerous examples of the "unexpected and fruitful" advantages gained by practicing the claimed invention, including the results illustrated in Figures 3, 4-7, 9-13 and 15-19. One would <u>not</u> arrive at the arrangement of these four parameters/elements in the complex multi-step process as <u>specifically claimed</u> by claim 19 by chance or through general teachings from Aydemir or Aydemir in view of Bowen or VanZante; particularly said references <u>fail</u> to teach these four parameters and their specifically claimed relationships to one skilled in the art.

Aydemir and Aydemir in view of Bowen and VanZante fail to teach all of the claim limitations to one skilled in the art. More particularly, contrary to the examiner's remarks in his final rejection letter of January 2, 2008, Aydemir fails to offer teachings for determining a transmit probability as a function of an *average* occupancy level, instead only illustrating a *maximum* queue level parameter in his Figure 9. Aydemir also fails to teach determining a low level queue threshold as a *fraction* of a maximum capacity of the queue wherein the transmit probability is one, instead only generally discussing determining a queue level within the examiner's citations (Fig. 8, step 102 and page 20, lines 4-12). Neither does his Fig. 8 offer any *relevant and specific* teachings to one skilled in the art with respect to determining a queue hysteresis level threshold as a positive hysteresis factor multiple of the low level threshold. The hysteresis level threshold is greater than the low level threshold and less than the maximum capacity of the queue, as claimed.

Similarly, the examiner's citations to Aydemir's Fig. 8 steps 106, 108, and 112 and Fig. 11 steps 142-158 are *not mapped*, nor may they be mapped, to the *specific* claim limitations with respect to initializing a hysteresis flag to ON, and in response to the queue receiving packets with the hysteresis flag set to ON comparing a queue level to the hysteresis level threshold, the queue receiving and transmitting the first burst and revising the transmit probability if the compared queue level is less than the hysteresis level threshold, or randomly dropping a packet from the burst responsive to the transmit probability and transmitting a remainder of the first burst packets and revising the transmit probability and resetting the hysteresis flag to OFF, for a subsequent burst of packets determining a hysteresis flag ON/OFF state and, if ON, performing hysteresis level threshold comparing, receiving, transmitting and revising or dropping, transmitting, revising and resetting steps with respect to the subsequent burst as provided above.

The examiner *concedes* that Aydemir *fails* to teach the "use of hysteresis flag and hysteresis threshold" as claimed, but asserts that VanZante supplies the missing teachings. However, not only does VanZante fail to cure the deficiencies in Aydemir as noted above, VanZante also fails to offer *any* meaningful teachings with regard to the hysteresis flag and hysteresis threshold *as specifically claimed* to one skilled in the art. Instead, VanZante addresses *hub* management as follows at his Column 6, lines 40-50:

The hysteresis status is memorialized by a flag setting. This flag is set whenever a warning is issued at substep S43 below. The flag is reset upon initialization, upon shut down of a port at step S6, or whenever hub utilization falls below a hysteresis threshold. This hysteresis threshold can be set at or below the most sensitive level at which the hub utilization can be set.

Although the *terms* hysteresis flag and hysteresis threshold are discussed, such *general* teachings with respect to hub management offer *no* teachings to one skilled in the art as to *each* of the complex and detailed *queue* management techniques specifically claimed.

And lastly, the examiner also *concedes* that Aydemir *fails* to teach (iv) comparing a queue level to the low level threshold; (v) if less than the low level threshold and an aggregate traffic bandwidth presented to a network link connecting the queue to a node transmitting a subsequent burst is less than a maximum bandwidth capacity supported by the link, causing the queue to receive and transmit the subsequent burst, the computer system revising the transmit probability and resetting the hysteresis flag to ON; and (vi) or else causing the queue to receive the subsequent burst and randomly drop at least one packet from the subsequent burst in response to the transmit probability and transmit a remainder of the subsequent burst packets, the computer system revising the transmit probability, but then asserts that Bowen supplies the missing teachings. However, not only does Bowen fail to cure the deficiencies in Aydemir and Aydemir in view of VanZante, as noted above, the examiner's citations to Bowen, pages 13-3 and 13-4, are *not mapped*, nor may they be mapped, to the *specific* claim limitations (iv), (v) and (vi) listed above. Although this citation to Bowen offers *general* teachings as to adaptive algorithm techniques for queue management, the *limitations specifically claimed* are not taught by Bowen, nor would they be obvious in view of Aydemir in view of Bowen to one skilled in the art.

Claims 20-23 are directly or indirectly dependent upon and, therefore, include all of the limitations of claim 19. They are each thus also believed allowable over Aydemir and Aydemir in view of VanZante and Bowen for the reasons established above with respect to new claim 19. Independent article claims 24 and 29 incorporate limitations analogous to those discussed above with respect to claim 19, and claims 25-28 and 30-33 are directly or indirectly dependent upon and, therefore, include all of the limitations of

claims 24 and 29, respectively; each of these claims are thus also believed allowable over Aydemir and Aydemir in view of VanZante and Bowen for the reasons established above with respect to claim 19.
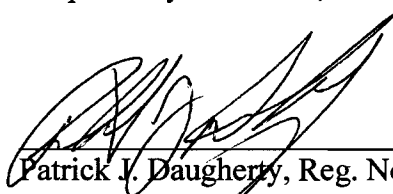
Conclusion

In view of the foregoing, it is submitted that claims 19-33 are distinguished patentably and non-obviously over the prior art of record; the examiner is respectfully requested to reconsider his final rejection and allow the claims as amended to correct informalities problematic under 35 USC § 112, second paragraph. It is believed that the examiner has fully searched and examined the subject matter claimed by the present claims, and that no new matter has been introduced necessitating a new search or further examination, and that the present amendments are properly entered after final rejection. An early indication of allowability is earnestly solicited.

Respectfully submitted,

Date: _____

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